WHAT IS CLAIMED IS:

1. A micro-porous mesh structure for supporting a wall of a body passage, comprising:

a generally tubular body having a contracted condition for facilitating delivery into the body passage, and an enlarged condition for engaging the wall of the body passage, the tubular body being biased to its enlarged condition; and

a plurality of openings in the tubular body defining a micro-porous mesh pattern therein.

2. The micro-porous mesh structure of claim 1, wherein each opening has a maximum dimension of not more than about 400 micrometers (0.016 inch).

3. The micro-porous mesh structure of claim 1, wherein the tubular body has a wall thickness of not more than about 25 micrometers (0.001 inch).

4. The micro-porous mesh structure of claim 1, wherein the tubular body comprises a coiled-sheet having overlapping inner and outer sections.

5. The micro-porous mesh structure of claim 4, wherein the inner and outer sections define a helical seam therebetween that extends down a length of the tubular body.

6. The micro-porous mesh structure of claim 4, wherein the inner and outer sections define a longitudinal seam therebetween that extends substantially parallel to a longitudinal axis of the tubular body.

7. The micro-porous mesh structure of claim 1, wherein the tubular body comprises a shape memory alloy.

8. The micro-porous mesh structure of claim 7, wherein the shape memory alloy is plastically deformable at or below substantially ambient temperatures to facilitate compressing the tubular body into its contracted condition.

9. The micro-porous mesh structure of claim 8, wherein the plurality of openings are at least partially compressed when the body is placed in its contracted condition.

10. The micro-porous mesh structure of claim 8, wherein the shape memory alloy has a transition temperature between substantially ambient temperatures and body temperature, whereby the tubular body is biased to the enlarged condition when exposed to body temperature.

11. The micro-porous mesh structure of claim 10, wherein the plurality of openings are biased to return to a fully open condition when exposed to body temperature.

12. The micro-porous mesh structure of claim 1, further comprising a plurality of struts formed integrally onto the tubular body and spaced along a length of the tubular body for supporting the tubular body against the wall of the body passage.

13. The micro-porous mesh structure of claim 12, wherein the plurality of struts have a thickness of between about 100 micrometers (0.004 inch) and about 150 micrometers (0.006 inch).

14. The micro-porous mesh structure of claim 1, wherein the plurality of openings are spaced apart from one another on a surface of the tubular body such that remaining sheet material provides not more than about 20 percent coverage of the wall of the body passage.

15. A prosthesis for supporting a wall of a body passage, comprising:

a tubular element defining a length and a circumference and having a plurality of openings defining a micro-porous mesh pattern therein, the tubular element having a contracted condition for facilitating delivery into the body passage, and an enlarged condition for engaging the wall of the body passage; and

a support element comprising a plurality of struts for engaging an interior surface of the tubular element, the support element being expandable between a contracted condition and an enlarged condition.

16. The prosthesis of claim 15, wherein the support element is biased to the enlarged condition at body temperature for substantially securing the tubular element against the wall of the body passage.

17. The prosthesis of claim 15, wherein the plurality of openings each have a maximum dimension of not more than about 400 micrometers (0.016 inch).

18. The prosthesis of claim 15, wherein the support element comprises a coiled-sheet stent.

19. The prosthesis of claim 15, wherein the support element comprises a shape memory alloy.

20. The prosthesis of claim 19, wherein the shape memory alloy comprises Nitinol having a transition temperature between a substantially ambient temperature and body temperature.

21. The prosthesis of claim 15, wherein the support element slidably engages the tubular element in the enlarged condition.

22. The prosthesis of claim 15, wherein the support element is attachable to the tubular element during deployment.

23. The prosthesis of claim 15, wherein the support element is substantially permanently attached to the interior surface of the tubular element.

24. The prosthesis of claim 15, wherein the support element has a wall thickness of not more than about 150 micrometers (0.006 inch).

25. The prosthesis of claim 15, wherein the tubular element comprises a coiled-sheet having overlapping inner and outer sections.

26. The prosthesis of claim 15, wherein the tubular element comprises a shape memory alloy.

27. The prosthesis of claim 26, wherein the shape memory alloy has a transition temperature between substantially ambient temperatures and body temperature, whereby the tubular element is biased to its enlarged condition when exposed to body temperature.

28. The prosthesis of claim 15, wherein the tubular element has a wall thickness of not more than about 25 micrometers (0.001 inch).

29. A method for making a prosthesis for supporting a wall of a body passage, the method comprising the steps of:

providing a sheet formed from a shape memory alloy;

forming a mesh pattern comprising a plurality of micro-porous openings in the sheet; and

forming the sheet into a generally tubular body.

30. The method of claim 29, wherein each opening has a maximum dimension of not more than about 200 micrometers (0.008 inch).

31. The method of claim 29, wherein the sheet has a wall thickness of not more than about 25 micrometers (0.001 inch).

32. The method of claim 29, wherein the mesh pattern is formed by chemically etching, laser cutting, punching, or drilling the micro-porous openings through the sheet.

33. The method of claim 29, wherein the step of forming the sheet into a generally tubular body comprises rolling the sheet into a coiled-sheet having overlapping inner and outer sections.

34. The method of claim 33, wherein further comprising attaching a support element to the tubular body.

35. The method of claim 29, wherein the step of providing a sheet comprises the steps of:

providing a sheet formed from a shape memory alloy having an initial wall thickness greater than about 25 micrometers (0.001 inch) and not more than about 150 micrometers (0.006 inch); and

removing portions of the sheet to provide a plurality of struts having a thickness similar to the initial wall thickness separating thin-walled regions having a final wall thickness of not more than about 25 micrometers (0.001 inch).

36. The method of claim 29, wherein the shape memory alloy has a transition temperature between a substantially ambient temperature and body temperature, and wherein the method comprises the additional steps of:

heat treating the tubular body at a first temperature substantially higher than the transition temperature to program an expanded condition for engaging the wall of the body passage into the shape memory material;

cooling the tubular body to a second temperature below the transition temperature; and

compressing the tubular body at the second temperature into a contracted condition for facilitating delivery into the body passage.

37. A method for supporting a wall of a predetermined location within a body passage using a prosthesis comprising a tubular element including a micro-porous mesh pattern therein, and a support element, the method comprising the steps of:

placing the tubular and support elements in contracted conditions on a distal region of a delivery device;

advancing the distal region of the delivery device endoluminally within the body passage to the predetermined location;

deploying the tubular element at the predetermined location; and

expanding the support element to an enlarged condition at the predetermined location to engage an interior surface of the tubular element, thereby substantially securing the tubular element against the wall of the predetermined location.

38. The method of claim 37, wherein the tubular element and the support element are placed adjacent one another on the distal region of the delivery device.

39. The method of claim 38, comprising the additional step of directing the support element across the predetermined location after the tubular element is deployed.

40. The method of claim 37, wherein the tubular element is placed concentrically over the support element on the distal region of the delivery device.

41. The method of claim 37, wherein the delivery device comprises one or more constraints for preventing the tubular and support elements from expanding from their contracted conditions after the tubular and support elements are placed on the distal region of the delivery device.

42. The method of claim 41, wherein at least one of the constraints comprises a sheath overlying at least one of the tubular and support elements.

43. The method of claim 41, wherein the tubular element is deployed at the treatment location by releasing it from at least one of the constraints.

44. The method of claim 41, wherein the support element is biased to expand to its enlarged condition at body temperature, and wherein the step of expanding the support element

comprises releasing the support element from at least one of the constraints, the support element automatically expanding to engage the interior surface of the tubular element.

45. The method of claim 44, wherein the tubular element is expanded to an enlarged condition as the support element expands to its enlarged condition, the tubular element thereby conforming substantially to the shape of the body passage.

46. The method of claim 44, wherein the tubular element is biased to expand to an enlarged condition at body temperature, and wherein the step of deploying the tubular element comprises releasing the tubular element from at least one of the constraints, the tubular element automatically expanding to its enlarged condition to conform to the wall of the predetermined location.

47. The method of claim 46, wherein the tubular element is mounted concentrically over the support element on the distal region of the delivery device, and wherein the tubular and support elements are released simultaneously from the constraints, the tubular element expanding more rapidly than the support element to conform to the cross-section of the predetermined location before being substantially secured by the support element against the wall thereof.

48. The method of claim 37, wherein the predetermined location comprises a stenotic region.

49. The method of claim 37, wherein the body passage comprises a carotid artery, a coronary artery, or a cerebral artery.

50. A method for treating a bifurcation between a main blood vessel and a branch blood vessel using a prosthesis comprising first and second micro-porous tubular elements and an open-celled support element, the method comprising the steps of:

advancing the first and second tubular elements and the support element in a contracted condition endoluminally into the main blood vessel;

deploying the first tubular element in one of the main and branch blood vessels distally of the bifurcation;

deploying the second tubular element in the main blood vessel proximally of the bifurcation; and

expanding the support element to an enlarged condition across the bifurcation to engage an interior surface of each of the first and second tubular elements, thereby substantially securing the first and second tubular element against the wall of their respective blood vessels.

51. The method of claim 50, wherein the first and second tubular elements are mounted to a distal portion of a delivery device in contracted conditions, and wherein the advancing step comprises advancing the distal portion with the first and second tubular elements in their contracted conditions into the main blood vessel.

52. The method of claim 51, wherein the first and second tubular elements are spaced apart from one another on the distal portion by a distance corresponding substantially to a width of the bifurcation.

53. The method of claim 50, wherein the support element is mounted to the distal portion of the delivery device in its contracted condition before being advanced into the main blood vessel.

54. The method of claim 53, wherein the delivery device comprises a sheath overlying the first and second tubular elements, and wherein the steps of deploying the first and second tubular elements comprises successively withdrawing the sheath from over the first and second tubular elements.

55. The method of claim 54, wherein the support element is mounted on the distal portion underneath the first and second tubular elements, and wherein the support element is deployed from the delivery device as the sheath is withdrawn from over the first and second tubular elements.

56. The method of claim 55, wherein the support element is biased to its enlarged condition at body temperature such that the support element automatically expands to the enlarged condition as it is deployed from the delivery device.

58. The method of claim 50, wherein the first and second tubular elements are biased to an enlarged condition for conforming to the wall of a blood vessel such that the first and second tubular elements automatically expand to their enlarged conditions during the deploying steps to conform substantially to the wall of the respective blood vessels.